

FIG. 3

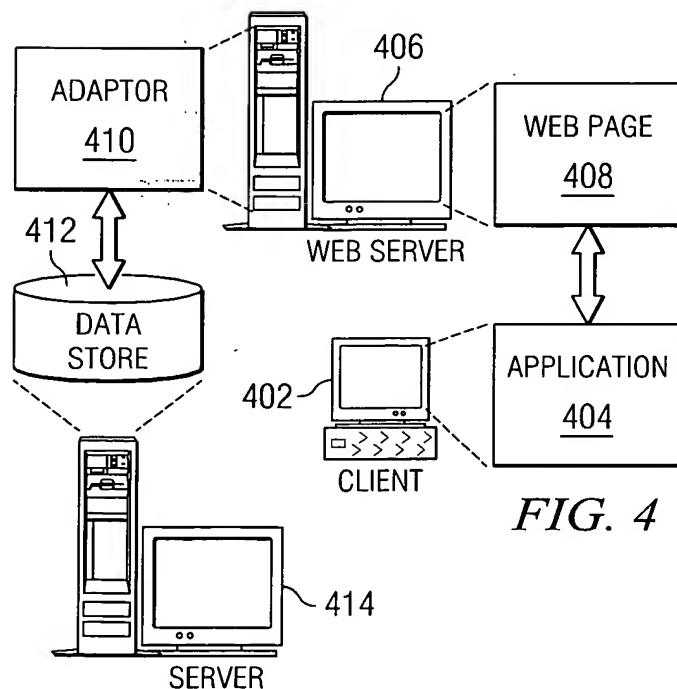


FIG. 4

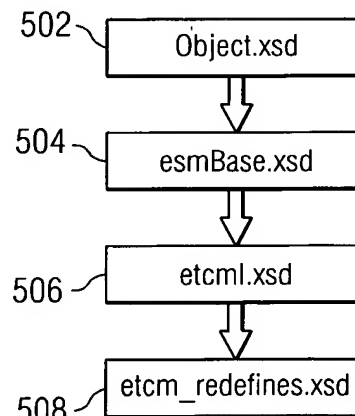


FIG. 5

FIG. 6A

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```

<?xml version="1.0" encoding="UTF-8"?>
<xsd:schema version="1.0" xml:lang="en-US"
targetNamespace="http://www.ibm.com/esm"
xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns="http://www.ibm.com/esm"
xmlns:etcML="http://www.ibm.com/v1/etcML" elementFormDefault="qualified"
attributeFormDefault="qualified">
<xsd:import namespace="http://www.ibm.com/v1/etcML"
schemaLocation="etcml_redefines.xsd" />

  <xsd:element name="esmML" type="etcML:etcRootType"> 604
    <xsd:annotation>
      <xsd:documentation xml:lang="en-us">Root element for our new
        extended esm language.</xsd:documentation>
    </xsd:annotation>
  </xsd:element> 602

  <xsd:complexType name="ESMResponseBodyType">
    <xsd:annotation>
      <xsd:documentation>ESM customized response Body</xsd:documentation>
    </xsd:annotation>
    <xsd:complexContent>
      <xsd:extension base="etcML:ResponseBodyType"> 608
        <xsd:sequence>
          <xsd:element name="RowSet" type="RowSetType"
            minOccurs="0" maxOccurs="1" />
          <xsd:element name="Properties"
            type="PropertiesType" minOccurs="0" maxOccurs="1" />
        </xsd:sequence>
      </xsd:extension> 610
    </xsd:complexContent>
  </xsd:complexType> 606

  <xsd:complexType name="ParameterType">
    <xsd:complexContent>
      <xsd:extension base="etcML:ParameterType"> 614
        <xsd:sequence>
          <xsd:element ref="etcML:RequestedFields" minOccurs="1"
            maxOccurs="1" />
          <xsd:element ref="etcML:StartRow" minOccurs="0"
            maxOccurs="1" />
          <xsd:element ref="etcML:MaxRowCount" minOccurs="0"
            maxOccurs="1" />
          <xsd:element ref="etcML:DisplayRowCount" minOccurs="0"
            maxOccurs="1" />
          <xsd:element name="RowSet" type="RowSetType"
            minOccurs="0" maxOccurs="1" />
        </xsd:sequence>
      </xsd:extension>
    </xsd:complexContent>
  </xsd:complexType> 612

```

FIG. 6B

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620 { <xsd:complexType name="PropertiesType">
      <xsd:complexContent>
        <xsd:extension base="etcML:TicketingRecordSetType">
          <xsd:sequence maxOccurs="unbounded" minOccurs="1">
            <xsd:element name="Property" type="FieldType" />
          </xsd:sequence>
        </xsd:extension>
      </xsd:complexContent>
    </xsd:complexType>
  }

628 { <xsd:complexType name="RowSetType">
      <xsd:complexContent>
        <xsd:extension base="etcML:TicketingRecordSetType">
          <xsd:sequence maxOccurs="unbounded" minOccurs="1">
            <xsd:element name="Row" type="RowType" />
          </xsd:sequence>
          <xsd:attribute name="name" type="xsd:string" />
        </xsd:extension>
      </xsd:complexContent>
    </xsd:complexType>
  }

623 { <xsd:complexType name="FieldType"> 624
      <xsd:sequence>
        <xsd:element name="name" type="xsd:string" />
        <xsd:element name="value" type="xsd:string" />
      </xsd:sequence>
    </xsd:complexType>
  } 626

630 { <xsd:complexType name="RowType"> 632
      <xsd:sequence minOccurs="0">
        <xsd:element name="Column" type="ColumnType" minOccurs="0"
          maxOccurs="unbounded" />
        <xsd:element name="RowSet" type="RowSetType" minOccurs="0"
          maxOccurs="unbounded" />
      </xsd:sequence>
      <xsd:attribute name="name" type="xsd:string" /> 634
      <xsd:attribute name="rowNumber" type="xsd:positiveInteger" />
    </xsd:complexType>
  }

636 { <xsd:complexType name="ColumnType">
      <xsd:complexContent>
        <xsd:extension base="FieldType"> 638
          <xsd:sequence>
            <xsd:element name="enums" type="EnumsType" minOccurs="0" />
            <xsd:element name="metadata" type="MetadataType" minOccurs="0" />
          </xsd:sequence>
        </xsd:extension>
      </xsd:complexContent>
    </xsd:complexType>
  }

640 { <xsd:complexType name="EnumsType">
      <xsd:sequence maxOccurs="unbounded" minOccurs="1">
        <xsd:element name="enum" type="xsd:string" />
      </xsd:sequence>
    </xsd:complexType>
  }

```

FIG. 7A

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```

<?xml version="1.0" encoding="UTF-8"?>
<xsd:schema xml:lang="en-us" version="1.0" elementFormDefault="unqualified"
xmlns:xsd="http://www.w3.org/2001/XMLSchema" attributeFormDefault="unqualified"
targetNamespace="http://www.ibm.com/v1/etcML"
xmlns="http://www.ibm.com/v1/etcML" xmlns:Q1="http://www.ibm.com/etc">
  <xsd:complexType name="etcRootType">
    <xsd:sequence minOccurs="1" maxOccurs="1">
      <xsd:element name="Transactions" type="TransactionsContainerType"
minOccurs="0" maxOccurs="1" />
    </xsd:sequence>
    <xsd:attribute name="ID" type="xsd:ID" use="optional" />
  </xsd:complexType>
  <xsd:complexType name="TransactionsContainerType">
    <xsd:choice minOccurs="1" maxOccurs="1">
      <xsd:element name="Request" type="TransactionRequestType"
minOccurs="0" maxOccurs="1"> </xsd:element>
      <xsd:element name="Response" type="TransactionResponseType"
minOccurs="0" maxOccurs="1"> </xsd:element>
    </xsd:choice>
  </xsd:complexType>
  <xsd:complexType name="TransactionRequestType">
    <xsd:complexContent>
      <xsd:extension base="TransactionType">
        <xsd:sequence>
          <xsd:element name="SystemID" type="ProviderType"
minOccurs="0"
maxOccurs="1"> </xsd:element>
          <xsd:element name="TransactionType"
type="ProviderActionType" minOccurs="1" maxOccurs="1">
            </xsd:element>
          <xsd:element name="Parameters"
type="ParameterType"> </xsd:element>
        </xsd:sequence>
      </xsd:extension>
    </xsd:complexContent>
  </xsd:complexType>
  <xsd:complexType name="TransactionType">
    <xsd:attribute name="userID" type="xsd:string" use="required" />
    <xsd:attribute name="password" type="xsd:string" use="optional" />
    <xsd:attribute name="timeStamp" type="xsd:dateTime" use="required" />
    <xsd:attribute name="languageCode" type="LanguageCodeType" use="required" />
    <xsd:attribute name="countryCode" type="CountryCodeType" use="required" />
    <xsd:attribute name="timeZone" type="TimeZoneType" use="required" />
  </xsd:complexType>
  <xsd:simpleType name="ProviderType">
    <xsd:restriction base="xsd:string">
      <xsd:enumeration value="e-ESM61"/>
      <xsd:enumeration value="e-ESM44"/>
    </xsd:restriction>
  </xsd:simpleType>

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FIG. 7B

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<xsd:complexType name="TransactionFilteredRequestType">
  <xsd:complexContent>
    <xsd:extension base="TransactionRequestType">
      <xsd:sequence>
        <xsd:element ref="Filters" minOccurs="0" maxOccurs="1"> </xsd:element>
        <xsd:element ref="Sort" minOccurs="0" maxOccurs="1"> </xsd:element>
      </xsd:sequence>
    </xsd:extension>
  </xsd:complexContent>
</xsd:complexType>

<xsd:element name="Sort">
  <xsd:complexType>
    <xsd:sequence maxOccurs="1" minOccurs="1">
      <xsd:element ref="SortOrder" minOccurs="1" maxOccurs="unbounded" />
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>

<xsd:element name="SortOrder" type="SortOrderType" />

<xsd:complexType name="SortOrderType">
  <xsd:sequence minOccurs="1" maxOccurs="1">
    <xsd:element ref="Value" minOccurs="1" maxOccurs="1"> </xsd:element>
  </xsd:sequence>
  <xsd:attribute name="operator" type="SQLGroupByOperatorType" />
</xsd:complexType>

<xsd:element name="Value" type="xsd:string"> </xsd:element>

<xsd:simpleType name="SQLGroupByOperatorType">
  <xsd:restriction base="xsd:string">
    <xsd:enumeration value="Ascending"> </xsd:enumeration>
    <xsd:enumeration value="Descending"> </xsd:enumeration>
  </xsd:restriction>
</xsd:simpleType>

<xsd:element name="Filters">
  <xsd:complexType>
    <xsd:sequence maxOccurs="unbounded">
      <xsd:element ref="Filter" minOccurs="0" maxOccurs="unbounded" />
      <xsd:element ref="Filters" minOccurs="0" maxOccurs="unbounded" />
    </xsd:sequence>
    <xsd:attribute name="operator" type="SQLConditionJoinOperatorType" use="required" />
  </xsd:complexType>

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FIG. 7C

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760 { <xsd:simpleType name="SQLConditionJoinOperatorType">
      <xsd:restriction base="xsd:string">
        <xsd:enumeration value="And"> 762
        </xsd:enumeration>
        <xsd:enumeration value="Or"> 764
        </xsd:enumeration>
      </xsd:restriction>
    </xsd:simpleType>

    <xsd:element name="Filter" type="FilterType" />

768 { <xsd:complexType name="FilterType">
      <xsd:sequence minOccurs="0" maxOccurs="unbounded">
        <xsd:element ref="Value" minOccurs="1" maxOccurs="unbounded" />
      </xsd:sequence>
      <xsd:attribute name="key" type="xsd:string" use="required" />
      <xsd:attribute name="operator" type="SQLConditionOperatorType" 770
        use="required" />
    </xsd:complexType>

772 { <xsd:simpleType name="SQLConditionOperatorType">
      <xsd:restriction base="xsd:string">
        <xsd:enumeration value="Equal"> </xsd:enumeration>
        <xsd:enumeration value="GreaterThan"> </xsd:enumeration>
        <xsd:enumeration value="LessThan"> </xsd:enumeration>
        <xsd:enumeration value="GreaterThanOrEqualTo"> </xsd:enumeration>
        <xsd:enumeration value="LessThanOrEqualTo"> </xsd:enumeration>
        <xsd:enumeration value="NotEqualTo"> </xsd:enumeration>
        <xsd:enumeration value="Like"> </xsd:enumeration>
        <xsd:enumeration value="In"> </xsd:enumeration>
        <xsd:enumeration value="Between"> </xsd:enumeration>
        <xsd:enumeration value="NotIn"> </xsd:enumeration>
        <xsd:enumeration value="NotBetween"> </xsd:enumeration>
      </xsd:restriction>
    </xsd:simpleType>

774 { <xsd:complexType name="TransactionResponseType">
      <xsd:complexContent>
        <xsd:extension base="TransactionType">
          <xsd:sequence minOccurs="1" maxOccurs="1">
            <xsd:element name="SystemID" type="ProviderType"
              minOccurs="0" maxOccurs="1"> </xsd:element>
            <xsd:element name="TransactionType"
              type="ProviderActionType" minOccurs="1"
              maxOccurs="1"> </xsd:element>
            <xsd:element name="ErrorCode"
              type="ProviderErrorCodeType" 778
              minOccurs="1" maxOccurs="1" />
            <xsd:element name="ResponseDescription"
              type="xsd:string" minOccurs="1" maxOccurs="1" />
            <xsd:element name="Body" type="ResponseBodyType" 776
              minOccurs="0" maxOccurs="1" />
          </xsd:sequence>
        </xsd:extension>
      </xsd:complexContent>
    </xsd:complexType>

```

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```
<xsd:simpleType name="ProviderErrorCodeType">
  <xsd:restriction base="xsd:string">
    <xsd:enumeration value="0"> 782
      <xsd:annotation>
        <xsd:documentation xml:lang="en-us"> Successful 784
          transaction </xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
    <xsd:enumeration value="10000"> 786
      <xsd:annotation>
        <xsd:documentation xml:lang="en-us"> System
          788 failure </xsd:documentation>
      </xsd:annotation>
    </xsd:enumeration>
  </xsd:restriction>
</xsd:simpleType>
</xsd:schema>
```

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FIG. 7D

```
<?xml version="1.0" encoding="UTF-8"?>
<xsd:schema targetNamespace="http://www.ibm.com/v1/etcML"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns="http://www.ibm.com/v1/etcML" attributeFormDefault="unqualified"
  elementFormDefault="unqualified">
  <xsd:redefine schemaLocation="etcml.xsd">
    <xsd:simpleType name="ProviderActionType">
      <xsd:restriction base="ProviderActionType">
        <xsd:enumeration value="add" />
        <xsd:enumeration value="delete" />
        <xsd:enumeration value="get" />
        <xsd:enumeration value="list" />
        <xsd:enumeration value="validate" />
        <xsd:enumeration value="modify" />
      </xsd:restriction>
    </xsd:simpleType>
    <xsd:simpleType name="ProviderErrorCodeType">
      <xsd:restriction base="ProviderErrorCodeType">
        <xsd:minInclusive>0</xsd:minInclusive>
        <xsd:maxInclusive>12000</xsd:maxInclusive>
      </xsd:restriction>
    </xsd:simpleType>
  </xsd:redefine>
</xsd:schema>
```

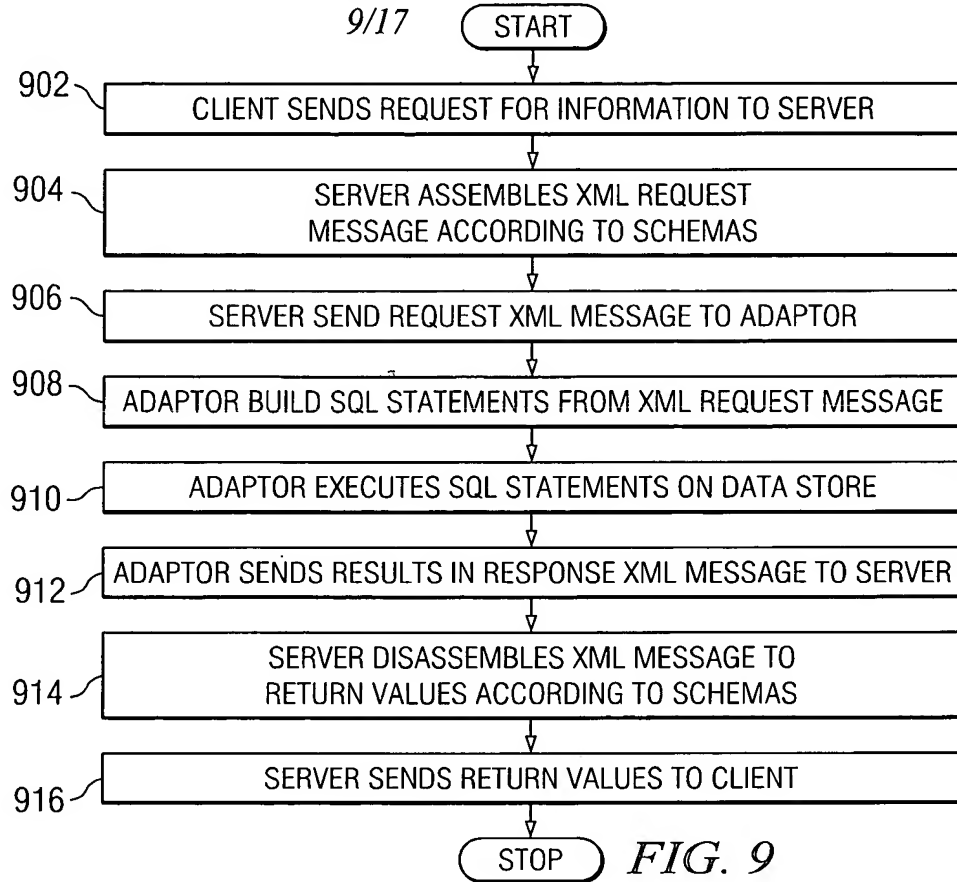
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FIG. 8

AUS920040040US1
Focazio et al.
Method and Apparatus for Splitting and Merging
Request and Response Data at Runtime



```

1002 <?xml version="1.0" encoding="UTF-8"?>
1004 <esm:esmML xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:esm="http://www.ibm.com/esm" xmlns:etcML="http://www.ibm.com/v1/etcML" ID="1">
  <Transactions>
    <Request xsi:type="esm:ObjectRequestType" countryCode="fr" languageCode="FR"
      timeZone="" esm:agentID="EXAV" esm:userTrace="false">
      <SystemID>eESM630</SystemID>
      <TransactionType>list</TransactionType>
      <Parameters xsi:type="esm:ParameterType">
        <etcML:RequestedFields>
          <RequestedField>ProblemTicket.id</RequestedField>
          <RequestedField>ProblemTicket.Person.id</RequestedField>
        </etcML:RequestedFields>
        <etcML:StartRow>1</etcML:StartRow>
        <etcML:DisplayRowCount>10</etcML:DisplayRowCount>
      </Parameters>
      <etcML:Filters operator="AND">
        <etcML:Filter key="ProblemTicket.id" operator="NotEqualTo">
          <etcML:Value>L</etcML:Value>
        </etcML:Filter>
      </etcML:Filters>
      <esm:TransactionTarget>ProblemTicket</esm:TransactionTarget>
    </Request>
  </Transactions>
</esm:esmML>
  
```

FIG. 10

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[11/14/03 15:55:57.057 CST] Servlet.Engine.Transports : 0:DEBUG
com.ibm.etc.cct.adapter.esm63.ejb.ESMAdapter63Bean.DataAccessManager - SQL 1101

1102 ~~~~~ 1104 ~~~~~ 1106
Stmt:SELECT PROBLEMS.PROBLEM_ID, PROBLEMS.FIRST_PEOPLE_ID FROM

1108 ~~~~~ 1110
TSD630UC.PROBLEMS PROBLEMS WHERE 1=1 AND ((PROBLEMS.PROBLEM_ID <>?)
FETCH FIRST 201 ROWS ONLY

[11/14/03 15:55:57.057 CST] Servlet.Engine.Transports : 0:DEBUG
com.ibm.etc.cct.adapter.esm63.ejb.ESMAdapter63Bean.DataAccessManager-
setParameters(List parameters, PreparedStatement iPS):Param Type: CHAR Value:L 1112

<?xml version="1.0" encoding="UTF-8"?>
<esm:esmML xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" 1120
xmlns:esm="http://www.ibm.com/esm" ID="1">
1122 <Transactions>
1124 <Response xsi:type="esm:ObjectResponseType" countryCode="fr" language code="FR"
timeStamp="2003-11-14T22:04:24Z" timeZone="">
 <SystemID> eESM630</SystemID>
 <TransactionType> list</TransactionType> 1128
1132 <ErrorCode>0</ErrorCode> 1126
 <ResponseDescription> success</ResponseDescription> 1130
1134 <Body xsi:type="esm:ObjectResponseBodyType">
1136 <esm:RowSet displayRowCount="10" fetchCount="201" maxRowCount="200"
startRow="1" totalCount="200" esm:name="ProblemTicket"> 1137
 <esm:Row esm:name="ProblemTicket" esm:rowNumber="1">
1138 <esm:Column>
1139 <esm:name> ProblemTicket.id</esm:name> 1140
 <esm:value> SITEA-00000034 </esm:value> 1142
 </esm:Column>
 <esm:Column>
1141 <esm:name> ProblemTicket.Person.id</esm:name> 1144
 <esm:value> 470000003</esm:value> 1146
 </esm:Column>
 </esm:Row>
 <esm:Row esm:name="ProblemTicket" esm:rowNumber="2">
 <esm:Column>
 <esm:name> ProblemTicket.id</esm:name>
 <esm:value> SITEA-00000089 </esm:value>
1148 </esm:Column>
 <esm:Column>
 <esm:name> ProblemTicket.Person.id</esm:name>
 <esm:value> 470000003</esm:value>
 </esm:Column>
 </esm:Row>
 </esm:RowSet>
 </Body>
 </Request>
 </Transactions>
</esm:esmML>

FIG. 11

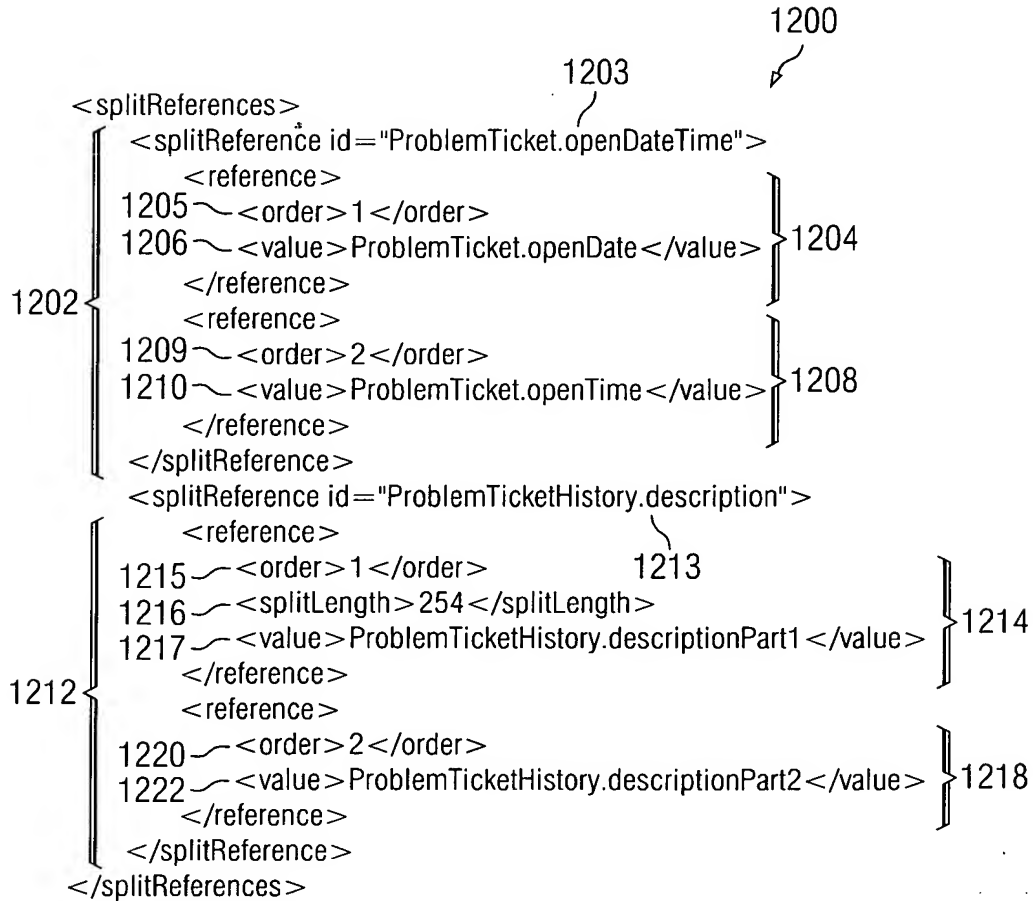


FIG. 12A

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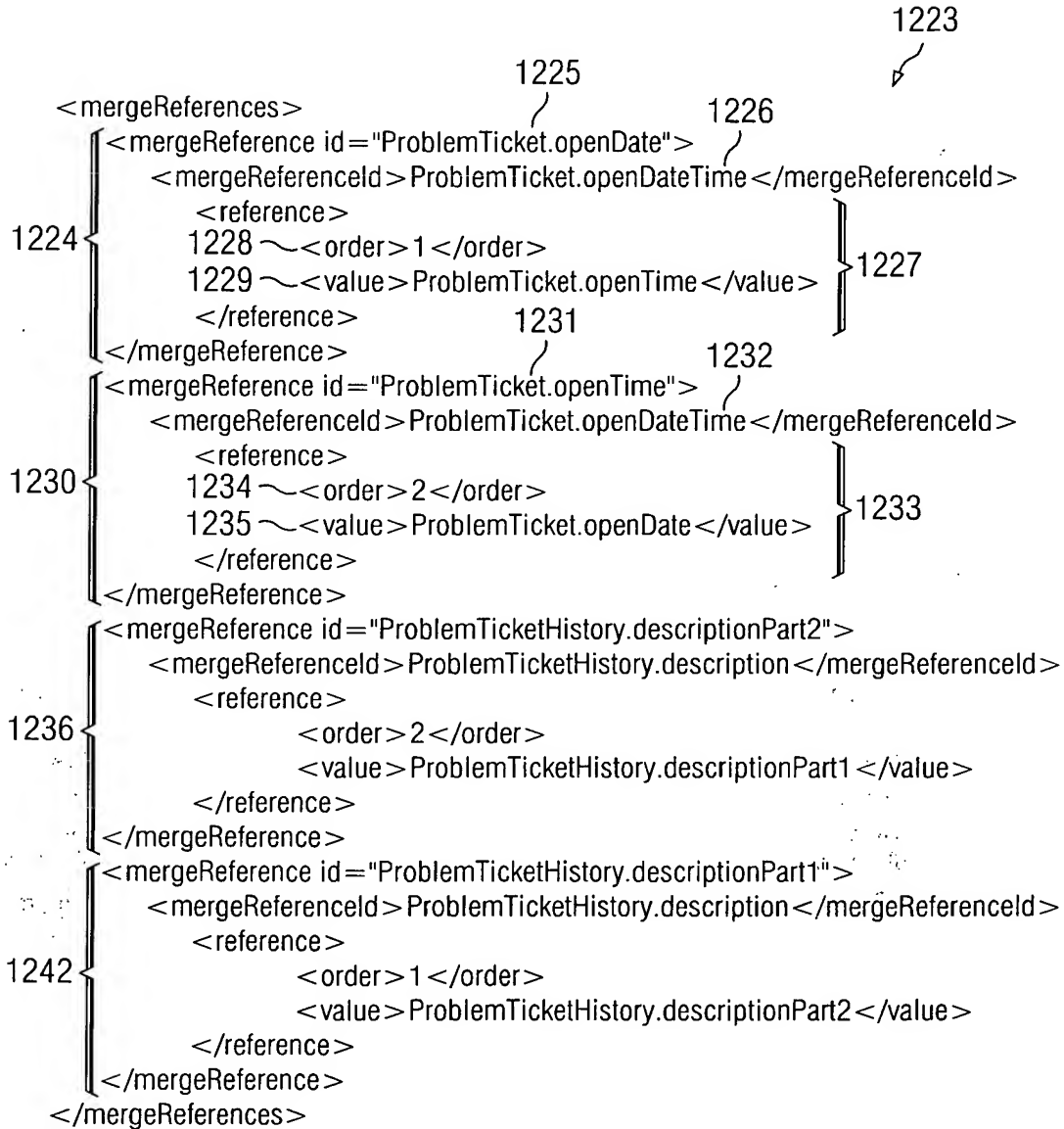


FIG. 12B

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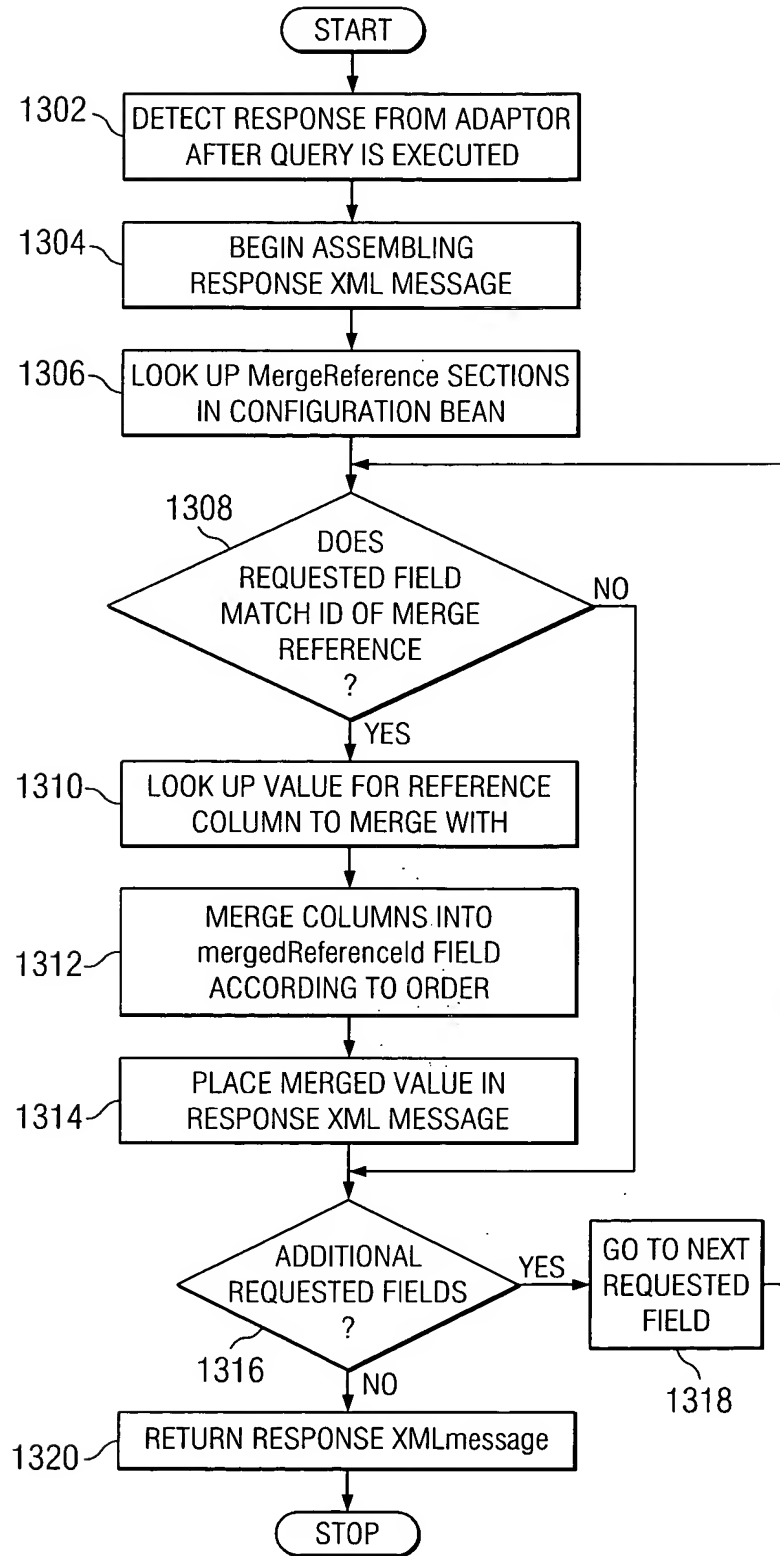
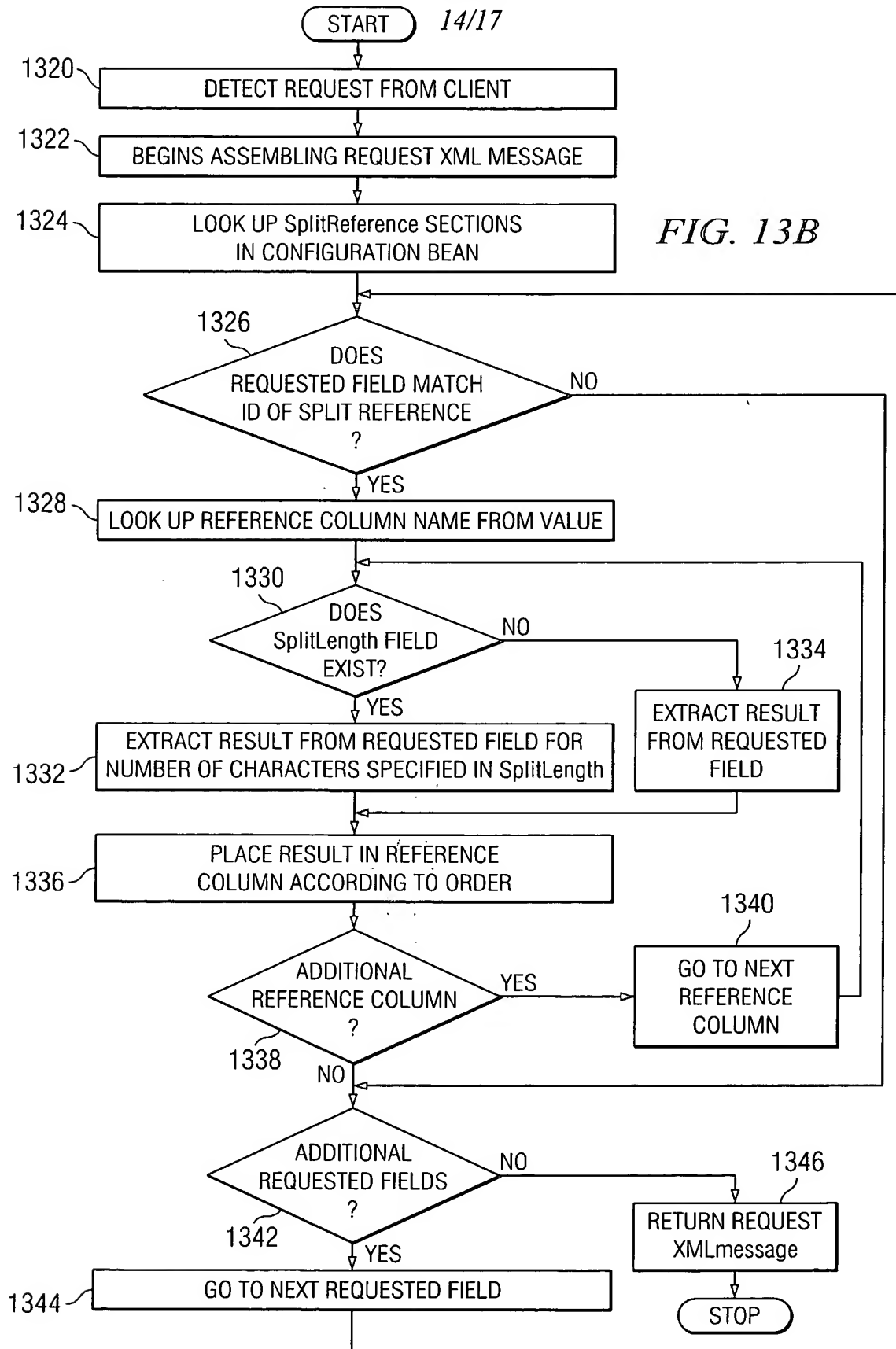


FIG. 13A



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```

<?xml version="1.0" encoding="UTF-8"?>
<esm:esmML xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:esm="http://www.ibm.com/esm" xmlns:etcML="http://www.ibm.com/v1/etcML" ID="2">
  <Transactions>
    <Request xsi:type="esm:ObjectRequestType" countryCode="fr" languageCode="FR"
timeZone="" esm:agentID="EXAV" esm:userTrace="false">
      <SystemID>eESM630</SystemID>
      <TransactionType>get</TransactionType>
      <Parameters xsi:type="esm:ParameterType">
        <etcML:RequestedFields>
1402  <RequestedField>ProblemTicket.openDateTime</RequestedField>
        </etcML:RequestedFields>
        <etcML:StartRow>1</etcML:StartRow>
        <etcML:DisplayRowCount>10</etcML:DisplayRowCount>
      </Parameters>
      <etcML:Filters operator="AND">
        <etcML:Filter key="ProblemTicket.id" operator="Equal">
          <etcML:Value>SITEA-00001262</etcML:Value>
        </etcML:Filter>
      </etcML:Filters>
      <esm:TransactionTarget>ProblemTicket</esm:TransactionTarget>
    </Request>
  </Transactions>
</esm:esmML>

```

FIG. 14A

```

<?xml version="1.0" encoding="UTF-8"?>
<esm:esmML xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:esm="http://www.ibm.com/esm" xmlns:etcML="http://www.ibm.com/v1/etcML" ID="2">
  <Transactions>
    <Request xsi:type="esm:ObjectRequestType" countryCode="fr" languageCode="FR"
timeZone="Europe/Paris" esm:agentID="EXAV" esm:userTrace="false">
      <SystemID>eESM630</SystemID>
      <TransactionType>get</TransactionType>
      <Parameters xsi:type="esm:ParameterType">
        <etcML:RequestedFields>
1412  <RequestedField>ProblemTicket.openDate</RequestedField>
1414  <RequestedField>ProblemTicket.openTime</RequestedField>
        </etcML:RequestedFields>
        <etcML:StartRow>1</etcML:StartRow>
        <etcML:DisplayRowCount>10</etcML:DisplayRowCount>
      </Parameters>
      <etcML:Filters operator="AND">
        <etcML:Filter key="ProblemTicket.id" operator="Equal">
          <etcML:Value>SITEA-00001262</etcML:Value>
        </etcML:Filter>
      </etcML:Filters>
      <esm:TransactionTarget>ProblemTicket</esm:TransactionTarget>
    </Request>
  </Transactions>
</esm:esmML>

```

FIG. 14B

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```

[11/14/03 16:00:16.016 CST] Servlet.Engine.Transports : 0:DEBUG
com.ibm.etc.cct.adapter.esm63.ejb.ESMAAdapter63Bean.DataAccessManager-SQL
Stmt:SELECT PROBLEMS.OPEN_DATE, PROBLEMS.OPEN_TIME FROM

```

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```

TSD630UC.PROBLEMS PROBLEMS WHERE 1=1 AND ((PROBLEMS.PROBLEM_ID = ?
)) FETCH FIRST 2 ROWS ONLY

```

```

[11/14/03 16:00:16.016 CST] Servlet.Engine.Transports : 0:DEBUG
com.ibm.ect.cct.adapter.esm63.ejb.ESMAAdapter63Bean.DataAccessManager -
setParameters(List parameters, PreparedStatement iPS):Param Type: CHAR Value:SITEA-
00001262

```

FIG. 14C

| PROBLEMS | |
|--------------|------------|
| OPEN_DATE | OPEN_TIME |
| AUG 26, 2003 | 8:32:19 PM |

FIG. 14D

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```

<?xml version="1.0" encoding="UTF-8"?>
<esm:esmML xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:esm="http://www.ibm.com/esm" ID="2">
  <Transactions>
    <Response xsi:type="esm:ObjectResponseType" timeStamp="2003-11-14T22:08:47Z">
      <SystemID>eESM630</SystemID>
      <TransactionType>get</TransactionType>
      <ErrorCode>0</ErrorCode>
      <ResponseDescription>success</ResponseDescription>
      <Body xsi:type="esm:ObjectResponseBodyType">
        <esm:RowSet fetchCount="1" maxRowCount="1" startRow="1" totalCount="1"
esm:name="ProblemTicket">
          <esm:Row esm:name="ProblemTicket" esm:rowNumber="1">
            <esm:Column>
1432  <esm:name>ProblemTicket.openDateTime</esm:name>
1434  <esm:value>Aug 26, 2003 8:32:19 PM</esm:value>
            </esm:Column>
          </esm:Row>
        </esm:RowSet>
      </Body>
      <esm:TransactionTarget>ProblemTicket</esm:TransactionTarget>
    </Response>
  </Transactions>
</esm:esmML>

```

FIG. 14E